

**A GENOMICS ENGINE**

REPLACEMENT SHEET

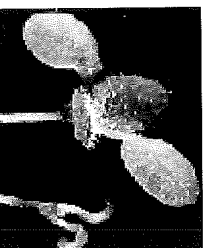
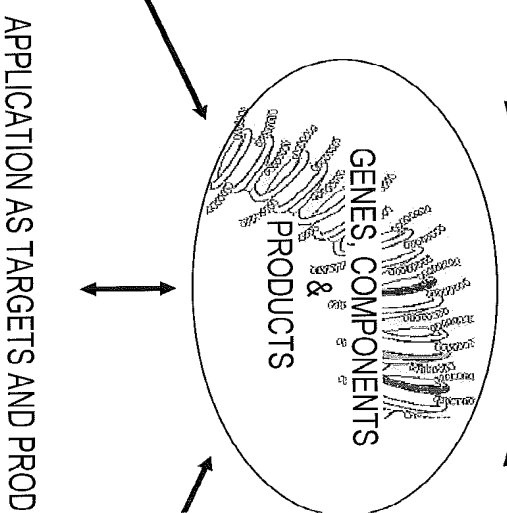
(1) POLYPEPTIDE FUNCTIONAL ANALYSIS

(2) DIFFERENTIAL EXPRESSION (MICROARRAYS)

(5) FINDING AND CHARACTERIZING PROMOTERS

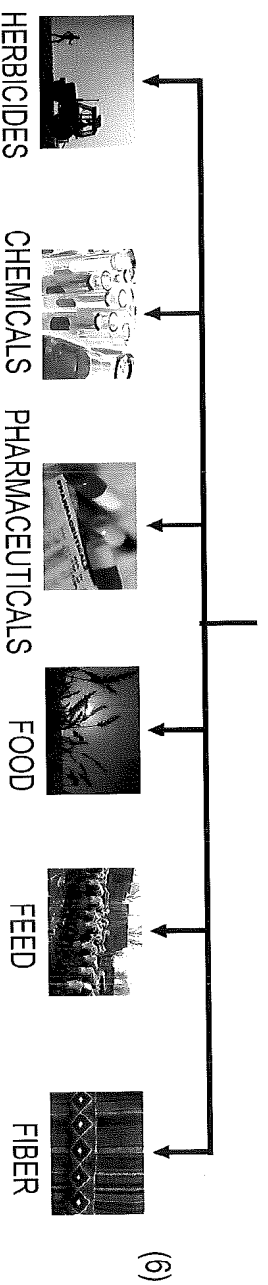
(3) GENE DISRUPTION (KNOCK-OUT)

(4) ECTOPIC GENE EXPRESSION (KNOCK-IN)



APPLICATION AS TARGETS AND PRODUCTS

FIG.1

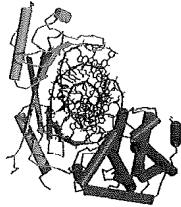


The diagram illustrates a signal transduction pathway. At the top, a circle labeled "STIMULI" with radiating lines represents the initial signal. An arrow points from the stimuli to a DNA double helix structure labeled "GENES A, B, C, & D ON A CHROMOSOME". Below the DNA, a large arrow labeled "TRANSCRIPTION" points to four horizontal bars representing "mRNAs A, B, C, & D". From these mRNAs, another large arrow labeled "TRANSLATION" points to four 3D protein structures labeled "PROTEINS A, B, C, & D". Finally, a large arrow labeled "PATHWAY ACTION" points to the right, indicating the downstream effects of the proteins.

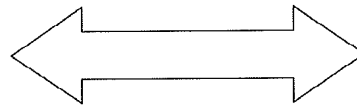
[illegible]

**INTEGRATION OF DATA ACROSS SPECIES TO LINK  
GENE PRODUCTS AND PHENOTYPES**

ARABIDOPSIS  
PROTEIN

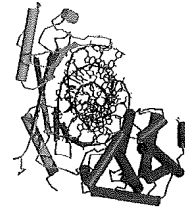


SIMILAR SEQUENCE  
&  
SIMILAR STRUCTURE



THUS  
SIMILAR FUNCTION

MAIZE  
PROTEIN



ARABIDOPSIS

**FUNCTIONS FROM ARABIDOPSIS TO CORN**



OXIDASE  
DROUGHT RESPONSIVE  
SEED PROTEIN  
EMBRYO LETHAL



MAIZE

**FIG.3**

REPLACEMENT SHEET

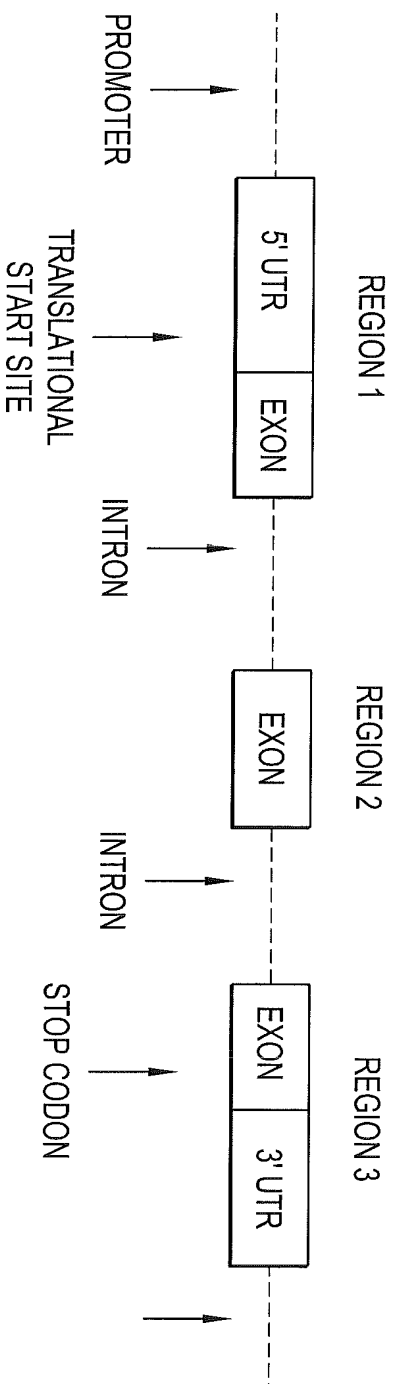


FIG.4

REPLACEMENT SHEET

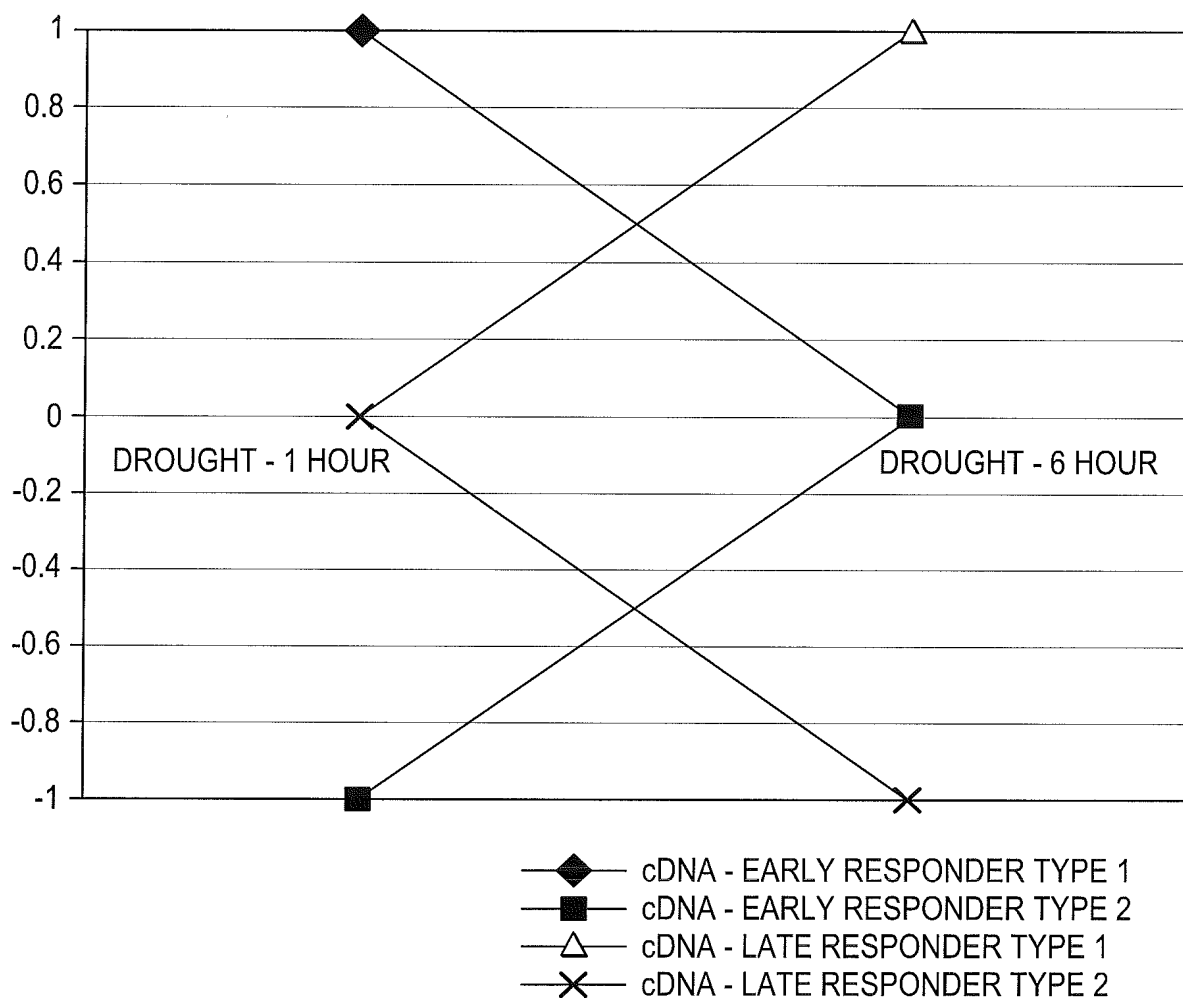


FIG.5

REPLACEMENT SHEET

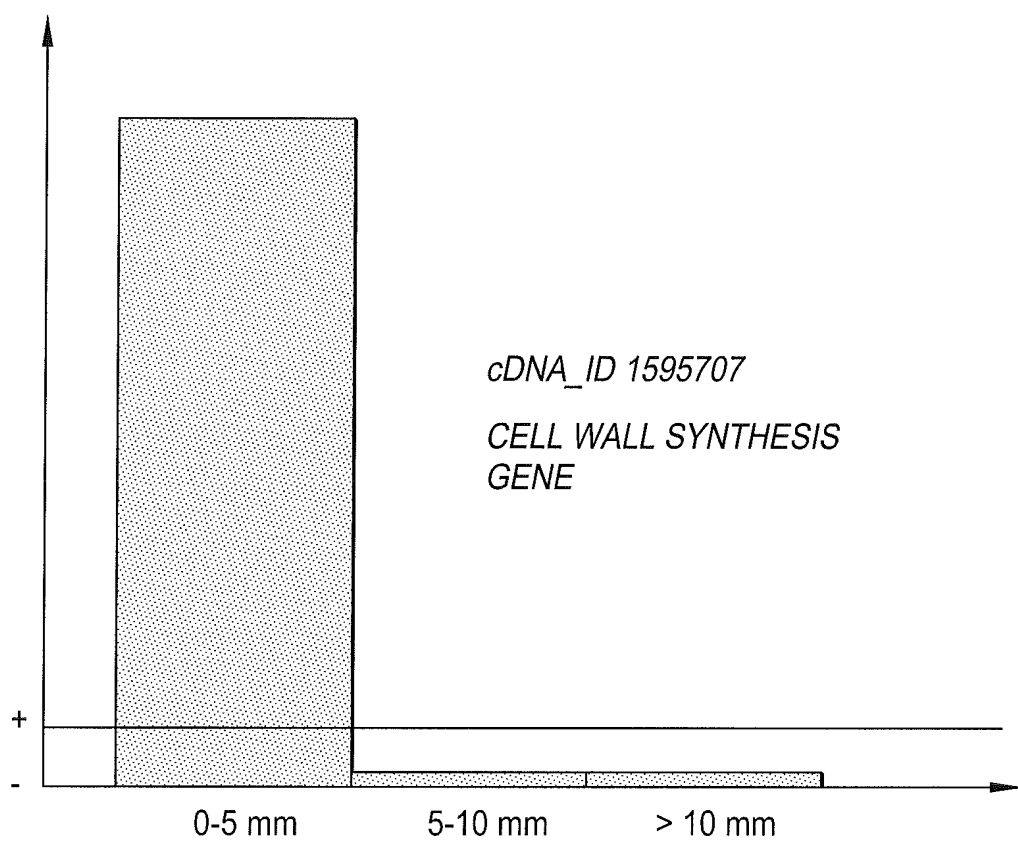


FIG.6

REPLACEMENT SHEET

# SCHEMATIC OF A GENE

## REPLACEMENT SHEET

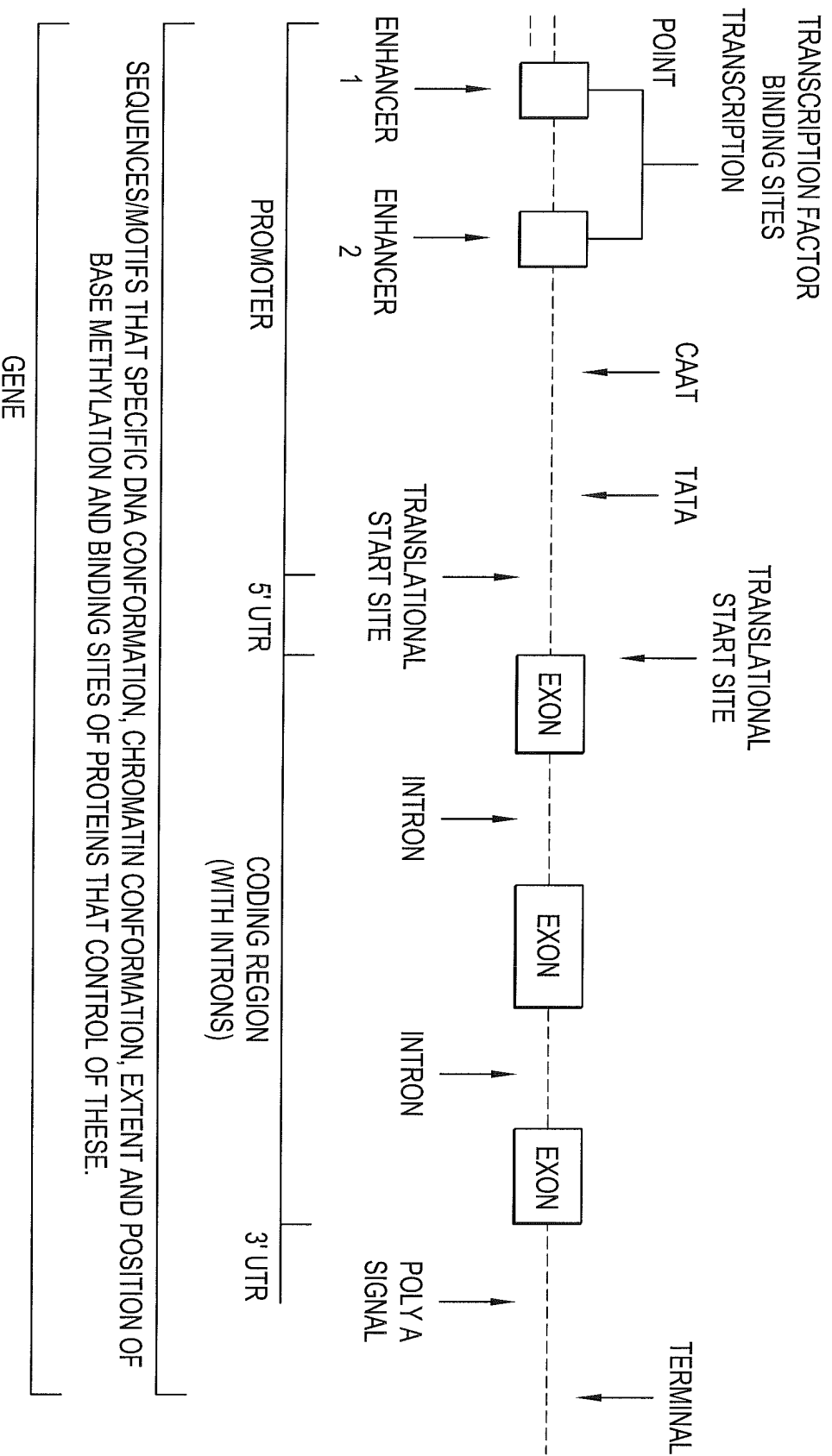


FIG.7